

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

THE SUPERINTENDENT

COPY FROM 143

MONTHLY REPORT

FOR

MARCH, 1921.

MONTHLY REPORT

1921.

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E OF THE SUPERINTENDENT

April 9, 1921.

Dear Sir:

The following is report on conditions in Yellowstone National Park, and on the operation of the park, for the month of March, 1921.

GENERAL CONDITIONS:

Weather: The weather conditions at Park Headquarters (Mammoth Hot Springs), are indicated by the following notes furnished by the Observer of the Local United States Weather Bureau. The temperature record which shows an average of 3.5 warmer than normal, and precipitation record of 1.24 inches or .94 inches less than normal, together indicate an unusually mild March and increase the probabilities of an early spring and early opening of the park roads.

Temperature: Monthly mean, 30.0° , is 3.5° above normal. Warm month, the temperature on several days being unseasonably high. No cold period of consequence occurred, the lowest being 3° on the 12th.

Precipitation: Total, 1.24 inches, is 0.94 inch below normal. Light rain or snow was well distributed through the month, there being but eight days that were free from precipitation.

Snowfall: Total, 12.4 inches, or about one-third less than for the average March. There were a number of light snows which soon melted, the greatest of which was 3.0 inches on the 19th. Except for butts of drifts, the ground was practically bare from the 5th to the end of the month.

Wind: Numerous high winds occurred, and the total movement of 8131 miles is, with one exception, the highest since the record began in 1904. On the 14th a maximum velocity for a five-minute period was 54 miles

from the south, with an extreme velocity of 78 miles for two minutes. The maximum velocity of 54 miles is not only the highest of record for March, but is the highest for all months of the year, and the second occurrence of a wind of 50 miles or more, the previous record being 52 miles from the southwest on July 14, 1904.

Sunshine: Percentage of possible 55, slightly below normal.

The Monthly Meteorological Report for March, also furnished by the local Weather Bureau, is also enclosed.

The following table refers to depth of snow in inches on the ground at various points in the park at the close of March, 1921, and for comparison the same at the end of February, 1921, and March 31, 1920:

Station

Depths of Snow, in inches.

	<u>1 9 2 1</u>		<u>1 9 2 0</u>		
	<u>Mar. 31</u>	<u>- Feb. 28</u>	<u>Mar. 31</u>		
Mammoth Hot Springs,	0	5.4	19	—	0
Norris,	12	12	54	48	12
Riverside,	24	24	50	26	0
Upper Basin,	--	4	70	36	0
Gallatin,	26	18	48	30	0
Bechler,	72	70	--		
Snake River,	53	58	73		34
Thumb,	46	50			28
Lake,	36	30	64	47	18
Upper Yellowstone,	36	30			0
East Entrance,	24	26	67	—	
Canyon,	24	30	70	48	22
Tower Falls,	8	14	29	10	0
Buffalo Ranch,	Trace	10	36	18	0
Soda Butte	Trace	12	32	20	0

The comparison between the dates February 28 and March 31, 1921, indicate an almost total disappearance of snow from Mammoth, Soda Butte, and the Buffalo Ranch, though, of course, it is still present in the form of drifts; also but little change at the higher points, but there was in reality a substantial settling of the old snow at all points during the month, the difference being made up by recent storms, which are light and will disappear quickly.

The vast difference in snow depths on March 31st, 1920, and the same date in 1921, indicate a much earlier opening of the park roads, with much less expense than last year. The usual short drifts, 20 to 30 feet deep, are found in Golden Gate and Sylvan Pass.

Travel.

The road between Headquarters and Gardiner was open to motor travel during March. The road from Headquarters on to Cooke via Tower Falls Station, Buffalo Farm, and Soda Butte, was traveled during the month by teams with sleighs, and before the end of the month the mail contractor managed to get as far as the 12-mile post with his motor truck.

The Oregon Short Line Railway Company sent in its snowplow and opened the railroad to the western entrance (West Yellowstone), arriving there on March 12th, but trains have not begun to run regularly into West Yellowstone.

Travel to the park in March was of no consequence. The Chief Ranger's Travel Reports, on the regular blank form, for March, 1921, and for March, 1920, for comparison, are enclosed.

Labor and Supply Market.

This office, as well as the public utilities operating in the park, are beginning to hire a few men for the earliest spring work. It is almost certain that good men will be plentiful, and wages considerably less than last year. Thus far we are paying common laborers \$3.52 per day of eight hours, less \$1.00 a day for board, which is approximately 50¢ per day below last year's scale, and others in this vicinity are paying about the same wages in proportion to length of day required. Wages for expert mechanics will be reduced to some extent, but probably in a smaller proportion.

Few supplies were purchased during the month, but arrangements were made for buying soon for necessary work during the remainder of the fiscal year. Prices quoted are much lower in all lines of subsistence supplies than last year.

II. PERSONNEL:

Notice was received during the month to the effect that, beginning April 1, 1921, this office would come within jurisdiction of a new Civil Service district, the 13th, with headquarters at Denver, Colorado, instead of under the 11th, at Seattle, as heretofore.

Employees.

On March 1st, there were 62 employees on duty under this office, which had been increased on March 31st to 64.

The following list shows the number of employees of various classes serving under appointment during the month, with a statement in general of the kind of work in which they were engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of work performed.</u>
2	Asst. Engineers	Office engineering, filing and cataloguing records, and making preparations for the season's work.
4	Clerks	1 Disbursing Agent and Purchasing Clerk; 1 on cost account work and property; 1 stenographer-typist on orders, proposals, and vouchers; 1 stenographer-typist on stenographic work, files, and cutting and pasting clippings.
2	Electricians	Read meters, did necessary line work, and operated power plant regular shifts, including Sundays.
2	Foremen	1 in charge of stables at headquarters, and repairing tents and harness; 1 since March 25th repairing sprinkler wagons. <i>Since Apr 1 and 1 since Apr 8 on road maintenance</i>
1	Telegraph Operator	Sent and received all Government Western Union messages; operated one shift on telephone switchboard.
1	Telephone Switchboard Operator	Operated telephone switchboard, daily shifts, including Sundays.
1	Master Mechanic	In charge of shops, and of repairs to heavy road machinery.

No. ClassKind of work performed.

1	Blacksmith	General blacksmith work, including shoeing horses in shop, overhauling and repairing tools and equipment.
1	Painter	Renovated quarters at headquarters, also painted signs and equipment, and prepared stencils and samples of paint for other national parks.
1	Lineman	In charge of telephone and telegraph system. Did emergency work and installed instruments.
7	Laborers	Teaming, freighting, work in warehouse, and miscellaneous work at headquarters.
1	Handyman	Worked in storehouse issuing and receiving supplies, and sorting property.
1	Buffalo Keeper	In charge of tame buffalo herd.
1	Asst. Buffalo Keeper	Assisting buffalo keeper.
1	Park Naturalist	Scientific research work, <i>and information service</i>
1	Plumber	In charge of general plumbing and repairs to same at headquarters.
2	Automobile Mechanics	Repairing motor trucks and touring cars.
1	Watchman	Made hourly patrols during night at Headquarters, took care of office, and kept furnace going during the night.
1	Carpenter	Repaired buildings at Headquarters, and overhauled equipment in shop.
1	Chief Ranger	In charge of Ranger force.
1	Asst. Chief Ranger	In charge of northern district - (Title changed to First Assistant Chief Ranger. Effective Mar. 16, 1921). <i>In charge of southern Dist</i>
1	Asst. " "	
22	Park Rangers	In charge of ranger stations, doing patrol work, and constructing cabins. 1 in charge of southern district as <i>in</i>

No. ClassKind of work performed.

Acting Assistant Chief; 1 on special duties as Acting Assistant Chief effective March 9, 1921.

- 3 Temporary Park Rangers Doing regular patrol work. 1 assisting in Chief Ranger's Office.
- 1 Fireman In charge of furnaces at headquarters.

In addition to the regular employees listed above under appointment, the following were employed temporarily by the day:

On March 1st - On March 31st

Laborers,	1	2
2 Horse Teamsters,	0	1
	1	3

Leaves of Absence.

During March, annual leaves of absence were granted as follows:

James Russell,	Park Ranger,	5½ days	- Mar.1-7(noon)
Carrie O. Haumesser,	Stenog.-Typist,	1 "	- Mar. 1
Nellie Roach,	Telephone Operator,	1 "	- Mar. 1
Fred J. Townsend,	Park Ranger, (S.L.)	½ "	- Mar. 1(noon)(S.L.)
A.W. Burney,	Asst.Engineer,	3½ "	- Mar.1(noon)-4
Warren Hutchings,	Asst.Buffalo Keeper,	10 "	- Mar.1-11
Sam T. Woodring,	Park Ranger,	4 "	- Mar.1-4
Thad C. Pound,	" "	1 "	- Mar.5
George McFarland,	Laborer, (S.L.)	3 "	- Mar.1-3 (S.L.)
Clarence Scoyen,	"	4 "	- Mar.10(noon)-15(noon)
Ford Purdy,	Park Ranger,	14½ "	- Mar.12-29(noon)
Carrie O. Haumesser,	Stenog.-Typist,	1 "	- Mar.12
W.H. Riley,	Auto.-Mechanic,	3 "	- Mar.10-12
Charlie R. Stinnett,	Blacksmith,	2½ "	- Mar.12-15(noon)
Chester A. Lindsley,	Asst.Supt.,	½ "	- Mar.12
Clifford Anderson,	Park Ranger,	1½ "	- Mar.16-17(noon)
Helen E. McMutt,	Stenog.-Typist,	1½ "	- Mar.17-18(noon)
William Wiggins,	Plumber,	2 "	- Mar.15-16
W.H. Riley,	Auto.-Mechanic,	3 "	- Mar.17-19
Daniel W. Tripp,	Laborer,	*15 "	- Mar.17-31*
*Sick. Leave to be applied for.			
G.T. Dustman,	Clerk,	½ "	- Mar.24(noon)
Roy T. Frazier,	Park Ranger,	5 "	- Mar.26-31
Wm. J. O'Loughlin,	Watchman,	2 "	- Mar.26-28
John N. McDonald,	Laborer,	4 "	- Mar.28-31

Appointments.

Foreman William H. Ferrell was taken up on March 25, 1921, from furlough since September 15, 1920.

March 16 - Harry Trischman, First Assistant Chief Park Ranger, at \$1440 per annum, by change of designation from Assistant Chief Park Ranger, at the same salary.

Appointments were received during the month covering change by designation of six "First-Class Park Rangers" to "Park Ranger", the title "First-Class Park Ranger" having been discontinued by the National Park Service.

Separations.

March 1 (noon) - Fred J. Townsend, Park Ranger, at \$1200 per annum (W.A.E.), resigned.

III. WORK COMPLETED:

(a) Construction of Physical Improvements.

No construction work was completed during March.

(b) Maintenance and Repair of Physical Improvements.

During the month, a warm period of several days duration caused a great deal of snow to melt on the road between Mammoth and Gardiner. The two engineers on duty patrolled this section for several days, clearing debris from culverts and ditches, and diverting streams from the road bed to the side ditches.

(c) Miscellaneous Improvement Work.

The two engineers devoted the greater share of their time to office work, accomplishing the following:

Completed one design in detail for a 20' span concrete T-beam bridge.

Made complete, one design in detail of a 12' span, concrete slab bridge.

Completed the plans and estimates for improvements to the sprinkling system in the park.

Made complete set of rules and regulations for the operation of the sprinkling system.

Made up a set of rules relating to the hiring of employees and teams; also a set of instructions for the benefit of prospective employees.

A new design was made for a wooden road-planer, which is to be adopted as a standard for the park if found to work successfully. The planer was constructed in the shops and later tried out on the Gardiner road with satisfactory results.

Most of the work performed during the month is reported under "IV. WORK IN PROGRESS".

(d) Service to the Public.

This feature was not of much importance since there was no regular travel to the park during the month. The enclosed Chief Ranger's Report, for March, with copy of same for March, 1920, for comparison, shows but 10 and 11 persons, respectively, entering the park, all from the north - usually coming as far as Headquarters on business.

Information Service:

146 National Park publications (of which 110 related to the Yellowstone National Park) were sent out free of charge. 92 short letters were sent out in reply to simple inquiries; 11 more letters requiring longer, more technical replies were answered after spending the necessary time in searching out the information desired. In addition, 146 letters applying for positions were answered, mostly by referring the applicants to the Hotel Company, the Camps Company, or the Transportation Company, as seemed most suitable.

IV. WORK IN PROGRESS.

(a) Construction of Physical Improvements.

There was no construction work in progress during March, except the construction of log cabins by park rangers mentioned under the heading "Work Begun" following.

(b) Maintenance and Repair of Physical Improvements.

The work done under this heading was accomplished by the regular winter employees and is covered in the following heading.

(c) Miscellaneous Improvement Work.

The Park Ranger force maintained such regular patrols as were necessary to properly protect the park

borders at this season of the year. Ranger Scoyen was designated Acting Assistant Chief Ranger effective March 9th and stationed at Grand Canyon to record the readings of the gage which registers the flow of the Yellowstone River above the Upper Falls. His reports indicate a steady fall in the flow. Rangers Henry Anderson and Dewing devoted most of their time to the work of killing predatory animals, and were fairly successful in their efforts. The feeding of elk on Slough Creek was continued up to about March 10th, and the buffalo were fed at the Lamar River ranch until about the same time, when the snow had disappeared over sufficient territory so this was no longer necessary. The hay on Slough Creek was practically exhausted by that time, but there will be approximately 200 tons left at the Buffalo Ranch for next year.

During the visit of Superintendent Albright to the park March 5th to 9th, on his way from Washington to California, the list of applicants for ranger positions for the summer of 1921 was considered, and the selections made. Letters were written asking reappointment of twelve men who held appointments last year at \$100 per month, and for the appointment of twenty-three additional temporary rangers from the new list, at \$80 per month, with increased compensation in each case.

Office hours were maintained from 8:30 A.M. to 5:30 P.M. daily, except on Sundays and holidays, and all members of the force were busy with usual routine work on vouchers, cost reports, correspondence, and filing, listing property, and making out memorandum receipts, and making general preparations for the coming busy summer season.

Park Naturalist Skinner continued his field work on birds, mammals, and plants, and especially on antelope during the early part of the month. Special study on museum construction was completed and a bibliography on the subject prepared for future use. Special study on forestry was continued and the study of Yellowstone Park plants was taken up again after having been dropped last October. Notes collected on field trips were written up and two manuscript articles prepared for publication. Other studies pursued by him, resulting in his notes on Season Changes, Information Service, and Natural Phenomena, as embodied in this report.

The Headquarters corral and small force of laborers did the miscellaneous work about Headquarters,

such as hauling away garbage, caring for horses, hauling supplies from the railroad, and giving general assistance in the shops and in connection with the care and maintenance of the property and plant. The foreman in charge of the stables also made excellent progress in repairing harness and tents in the saddle shop.

The plumber kept the water and sewer systems in repair and made installations of new parts to them where needed.

The painter and his assistant painted two touring cars and two trucks, and prepared sample boards and wet samples of paint showing the color adopted by the National Park Service for painting equipment, which were sent to ten other national parks for the guidance and information of the superintendents. The printed formula for making the color accompanied the samples. Stencils of proper size and style of letter for marking equipment, as adopted by the Service, were also cut from stencil paper and forwarded to the same parks.

The shop force made excellent progress in overhauling motor vehicles, and equipment, and putting them in repair for the coming working season. In the garage the 5-ton White Truck and one of the 5½-ton Mack Trucks were overhauled, as was also the 7-passenger White touring car; and the work of overhauling the 75-horse power caterpillar tractor was about completed. The carpenter repaired equipment, made slight repairs to buildings at Headquarters where needed, and made a heavy road drag which was designed by the Engineers as an experiment. The blacksmiths repaired equipment including the replacing of broken handles in axes, shovels, and other small tools, shod horses which were in use, etc.

The electricians and linemen together kept the telephone lines and instruments in repair, repaired the power lines, and installed new lamps where needed, and operated the hydro-electric power plant about 20 hours a day - 12 hours a day on Sundays and holidays when power was not needed at the shops. The plant generated a total of 11,580 K.W. hours of current during the month. Of this, 860 kilowatt hours were sold to park utilities for lighting purposes and power in shops, 1,009 kilowatt hours were consumed for street lighting, and the balance of 9,711 kilowatt hours were used for

Lighting and heating government buildings and furnishing power for shops. The peak load during the month was 46 kilowatts, on March 26th, at 9:00 P.M. During the month wiring was renewed in the quarters occupied by Park Naturalist Skinner, the new wiring being heavy enough so the current can be used for providing heat in the building.

A total of 89 days' leave were taken during March by our 64 regular employees. So many days of absence naturally interferes to a great extent with the progress of regular work, but their services can be spared better now than later, when the heavy operations of the working season begin.

Improvements by Park Utilities.

The Yellowstone Park Camps Company continued the employment of a few men at Mammoth, consisting of two mechanics overhauling equipment, two carpenters making benches and tables for use at the permanent camps, and two men who began renovating and painting at Mammoth Camp. They also had two men part of the month cutting cordwood at Willow Park, about eight miles south of Mammoth, for use at Mammoth Camp.

The Yellowstone Park Hotel Company employed winter keepers for their hotels at Mammoth, Norris Basin, Upper Geyser Basin, Lake, and Canyon.

The Yellowstone Park Transportation Company added materially to its force of mechanics early in March and began general overhauling of all of the big White motor busses which they have in use. The work of repainting these vehicles, which has been going on all winter, was continued, four painters being employed.

The postoffice store, under Mr. George Whittaker, was kept open during the entire month.

V. WORK BEGUN.

(a) Construction of Physical Improvements.

The Chief Ranger and First Assistant Chief Trischman, assisted by from three to five rangers, as their services could be spared from other work, began

the construction of a new substantial log cabin located on Hellroaring Creek three or four miles south of the northern line of the park, to take the place of the old snowshoe cabin, which is inadequate. The winter's experience herding the elk back from the north line, and with a view to holding them at the new feeding grounds on Slough Creek, has shown the necessity of keeping two or three rangers at Hellroaring the greater part of the fall and winter. The new cabin is well and substantially built, with an idea of furnishing comfortable quarters for two or three men. It is built of native logs cut on or near the site of the cabin; inside dimensions 15' x 32'; provided with two doors, four windows, a floor of boards, roof of boards covered with rubberoid roofing and building paper. Divided inside into two rooms, one for a kitchen, about 12' x 15', the living room about 20' x 15'. Most of the lumber used was salvaged from old buildings torn down in the park. The total cost of the work outside of the work which was performed by rangers will be in the neighborhood of \$150. The work was 80% completed at the end of March and will be done before the end of April.

In connection with the new cabin on Hellroaring, logs were also cut and put in place, and most of the roof put on, to a new building for use as a stable for housing saddle horses. The dimensions of this building are about 12' x 28'; roof of corrugated iron, which was salvaged from buildings torn down. This also should be completed before the end of April. The cost is included in the \$150 mentioned in connection with the cabin.

Assistant Buffalo Keeper Hutchings, assisted by Ranger C. Anderson, also began the construction of a small log building for use as a storehouse at the Slough Creek Hay Ranch. No expense other than the labor of these men is anticipated.

The work of giving the concrete reservoir, which is located near Mammoth Hot Springs as a part of our extensive water system, a thorough cleaning was begun during March. This work is being done under the direction of the stable foreman and the plumber, and by regular employees. It was about 50% completed at the close of March.

VI. PLANS OR PROPOSED WORK:

An inspection was made of the high steel bridge over the Gardiner River on the Tower Falls Road. The concrete piers were found to be in such condition that no repairs will be necessary this spring. The steel bases of the bents on this bridge are so constructed as to form pockets, which hold from three to four gallons of water, and as no seep holes are provided for the water to escape, it is retained in the pockets until evaporated. Because this water causes considerable injury to the steel, it is proposed to remove all water and rust from the pockets and fill them with asphaltic road oil. The steel bases resting on the abutments were found to be covered two to three feet deep with earth and loose rock, and the steel under this material to be heavily incrustated with rust. It is proposed to remove the earth from around the steel, and after thoroughly removing all rust to paint the steel with several coats of bridge paint. This work is estimated to cost about \$200.00 and to take eight days.

The south concrete abutment of the bridge over the Gardiner River near the state line was discovered to be badly undermined, making repairs necessary before next high water.

A new slide has started along the road in the Gardiner Canyon, at a point about $1\frac{1}{2}$ miles from Gardiner. As yet there has been no damage done to the road, but as the hillside shows cracks for some distance back from the road, it is likely that some trouble can be expected at this point in the future.

It is also proposed to construct two log diversion cribs to protect the East Forest Reserve Road from erosion.

For the month of April the ranger force is planning to finish the cabin and stable on Hellroaring Creek which was begun in March; finish the log storehouse at Slough Creek hay ranch, and also to tear down an old barn located about a mile from Gallatin Station and move and rebuild it at the present location on the park line. They are also planning to repair the fence around the Mammoth buffalo corral in preparation for receiving the show herd; get in a supply of wood for Mammoth public automobile camp for next season, and possibly build a log bridge across Yellowstone River about three miles below Tower Falls on the trail to

Hellroaring Cabin, shortening the trip from headquarters by several miles. This, of course, in addition to such regular patrolling as is necessary to insure proper protection of the park, and the continued pursuit and destruction of predatory animals, especially wolves, which are having their young at this time of the year.

It is proposed to continue the work in progress in the office and shops at headquarters, getting all equipment in repair for the summer's work, and making general plans for such work preparatory to asking for allotments from the new appropriation.

The fields at the Buffalo Ranch, on Slough Creek, and at Gardiner, may have to be irrigated if the spring is early enough so they get dry, and the ditches will have to be cleared out and prepared for use, and headgates repaired.

The work of remodeling the stone bachelor quarters to afford quarters for a museum and information office will be continued as time will permit, and quite extensive alterations are to be made in a frame building located in the group of old Engineer Buildings near this office and formerly used as a commissary storehouse, making it into a bunk house for laborers and other employees.

The Hotel Company is planning to make extensive changes in the Old Cottage Hotel for use as a men's dormitory at Mammoth. The inside is to be nearly all taken out and remodeled and renewed, plumbing renewed, and a general renovating take place.

The Transportation Company will continue the employment of a full shop force, overhauling motor cars and painting them, and also plans to build an adequate house around the heating plant which was installed last fall to warm the shops.

Mr. C.A. Hamilton is planning to get crews to the Upper Basin and Lake to go on with his construction work at those points just as soon as practicable, but it is doubtful if they can get in during April.

The Camps Company plans to go ahead with the new work in connection with the boys' camp at Tower Falls, before the opening of the season.

VII. POLICIES:

No new policies were adopted during the month.

VIII. COST OF OPERATION:

The report showing cost of work during March will be transmitted at an early date.

IX. OTHER MATTERS OF INTEREST:

Wild Animals.

All weather and grazing conditions were favorable to the wild animals, which have probably seldom if ever before put in a better winter so far as general condition and absence of any appreciable loss is concerned. By the end of March the elk and some of the antelope were already working well up towards the foothills of the high mountains, and all were getting ample forage, including considerable fresh grass that has already started. Neither were they badly harassed by predatory animals, and the deaths from this source were quite small, though there is always bound to be some loss from this cause.

Buffalo, tame herd: Most of the herd has been on grass on the range in the direction of Mt. Morris from the Buffalo Ranch since early in March. The calves are still held at the ranch and are being fed a little hay, but the latter part of April they can probably be allowed to run out with the balance of the herd. The mild winter has been easy on the hay, and about half of the 400 tons put up last summer will be carried over to be added to the supply for next year.

Buffalo, wild herd: The country frequented by the wild herd was not covered very thoroughly during March, as it is not always advisable to molest them too often for they are very timid and easily frightened out of the country. No reports were received from this herd during the month.

Bears: Numerous signs of bears were reported, and four black and one grizzly were seen during March.

Antelope: The rangers patrolling from Gardiner Station report having seen 225 antelope in their district during March. Further mention is made of them in remarks on Seasonal Changes in another part of this report. No losses were reported during March.

Sent Apr.
25 '21

7 calves
born. Nov
25

225 T her
left

Les Miner
saw 54 on
Cedar Cr
in good condition

But attain
Lace + 7

By Buff m
+ 2000
Heller

4 dead in Gar. Sec

Deer: The deer wintered well and are still in fine condition. The rangers estimate about 25 having been killed during the winter by carnivorous animals.

3 dead
Gardiner

Elk: Most of the elk ranged on the high ridges and those noted were all in excellent condition. The losses were small, estimated at about 40 head during the entire winter, of which most were calves killed by coyotes. Orders received for shipping elk to Platt National Park and to Dallas, Texas, could not be filled as it was not practicable to catch them because they were ranging so high and too far from the shipping point.

Good condition
but 2 dead
on other

Mountain Sheep: The sheep were not much in evidence as they were feeding high and none were reported.

6 rams on
Banyon
T. F. + 26 on

Moose: Eighteen moose were seen in the Hell-roaring District. They also are in excellent condition.

No sp. 10

Carnivorous Animals: Rangers Henry Anderson and Dewing devoted most of their time during the month of March to hunting coyotes, and preparing to hunt wolves in their dens during April when they have their young. Several dens have been located and are being watched. Reports are not definite to date, but approximately 100 coyotes have been killed this winter up to date.

Same
Dug out 1 den
& destroyed
1 large Male
& 11 pups

Grazing: Grazing conditions were unusually good for this time of the year, and all animals are getting plenty to eat.

Birds.

This subject is treated under the heading "Seasonal Changes".

Fishes.

Fishing was fairly good in Gardiner River, and several rangers and others with special permits fished in Yellowstone River above Gardiner with fair success.

Seasonal Changes.

The following notes on seasonal changes were furnished by Mr. M.P. Skinner, Park Naturalist:

Botanical:

Grass made good growth throughout the month for so early in the season. "Pussies" formed on the aspen on the 28th.

Birds:

The remainder of the mallards, golden-eye ducks, and Townsend solitaires that had wintered along the Gardiner River left during the month; and the dippers became reduced to summer numbers. The magpies, green-winged teal, mallard, and leucostictes wintering about Mammoth left for summer quarters.

Migratory birds arrived; bluebirds on the 2nd, robins on the 5th, Cassin purple finches on the 8th, pink-sided juncos on the 9th, red-winged blackbirds on the 10th, killdeer plover on the 12th, meadowlarks and intermediate juncos on the 20th, crows on the 23rd, and desert horned larks and pine siskins on the 28th. Birds began singing; bluebirds on the 3rd, red-winged blackbirds on the 10th, meadowlarks on the 22nd, Cassin purple finches on the 23rd, and Townsend solitaires on the 24th.

Interesting bird features of the month were: The earliest arrival ever recorded of the bluebird, robin, Cassin purple finch, and killdeer plover; the large number of song sparrows seen, 200% higher than any previous March figure, and bluebirds, 90% higher than any previous March figure; and the remarkable tameness of a flock of crows now near Mammoth.

Mammals:

Mule deer continued to migrate upward towards the summer ranges. The horn butts began to swell about the 20th, and at the end of the month the new horns were an inch long.

The elk about Mammoth fell off in numbers as the migration progressed until at the end of the month there were only about one hundred head within a radius of four miles. The green grass enticed an average of 16 elk per day to the plaza. The casting of horns continued throughout the month. On most of the bull elk the horn butts had begun to swell on the 28th.

A few mountain sheep were seen at intervals along the walls of the Gardiner Canyon, but they did not remain as in winter.

The antelope continued to move higher on the slopes of Mt. Everts and Sepulcher Mountain as the snow receded. All the males had full

grown horns by the 15th. Began to shed hair on the 24th. Woodchucks became common on the 25th, and ground squirrels became common on the 31st.

Jack rabbits began to change color on the 10th, and by the end of the month they had begun to turn gray all over.

Insects:

Springtails were swarming up through the snow on the 3rd. Small moths were seen flying on the 25th and became common before the end of the month. The first grasshopper was seen on the 31st.

Based on the above data, the season is now five days earlier than the average year. Flora and faunal changes have nothing to do with the melting of the snow; snow is now going off about two weeks earlier than the average.

Arrests and Violations of Law.

No arrests nor violations were reported for March. The United States Commissioner is still absent, in Denver, but with the understanding that he will return upon telegraphic request if his services are needed.

A notice of some of the provisions of the new game laws passed by the Montana State Legislature during its recent session, given through the press, indicate several changes that will work decidedly to the advantage of the protection of game in and around the park. Among these are an open season for elk of but thirty days, and limiting the number of animals that can be taken by one hunter to one elk and one male deer per season; creates a game commission to be appointed by the Governor, which has the power to control the wild life of the state and of the fish and game funds, and authorizes it to close any of the streams or parts of the state against fishing or hunting for any period of time.

Forest Fires.

No fires occurred in the park during the month.

Accidents and Casualties.

None reported during the month.

Sickness.

Ranger Townsend did not recover to the extent that he could continue the severe work sometimes required of a

ranger, and he was obliged to resign.

Medical Service.

Medical service was furnished by Doctor W.E. Crawbuck, under his special arrangement with park employees.

Natural Phenomena.

(By Park Naturalist Skinner)

At Mammoth Hot Springs: Blue Spring (the spring that furnishes water to Jupiter Terrace) showed possibly a little more activity. At any rate, the colored part of Jupiter Terrace is increasing in size and variety of coloring. The spring to the south is maintaining its wonderful activity and fine coloring. Marble Terrace continues to decrease in activity. Angel Terrace again showed an improvement in activity and beauty of coloring. The White Elephant maintains its activity and, if anything, is becoming still more highly colored. Activity at Orange Spring was the same as last month. Bath Lake and the Devil's Kitchen still continue normal. Narrows Terrace remains the same as reported last month. Minerva Terrace after becoming quite "dead", as reported last month, has again opened and a gentle trickle of water generating a little color is escaping. Mound Terrace continues normal. The Palette Spring continues to dry up. Cleopatra Terrace continues its normal activity and the color is as delicate and beautiful as ever. Hymen Terrace is drying up, a large part of the color and nearly all the water has disappeared, the wonderful algaous growth was turned to a marble whiteness and is slowly disintegrating.

Special Visitors.

Superintendent Albright arrived in the park on March 6th, en route from Washington, D.C., to the Pacific Coast, and spent the time from the 6th to the 9th in going over the plans for the summer's work.

Mr. Howard Hays, General Manager of the Yellowstone Park Camps Company, was here March 6th to 7th, on business connected with the affairs of his Company.

Mr. M.I. Tuttle, of Fromberg, Montana, came to the park March 5th to 9th to confer in regard to the construction of log buildings at Upper Basin and Grand

Canyon for use as ranger stations and community centers.

Mr. Frank S. Ellsworth, representing the War Risk Insurance Bureau of the Federal Government, in Montana, was at Mammoth Hot Springs March 5th to 7th on business connected with his Bureau, in the interest of some of our employees who were in the Army during the late war.

Motion Pictures.

No motion picture operators came to the park during the month.

One permit was issued, on March 7th, to Frederick A. Todd, of 34 South Main Street, Salt Lake City, Utah, for taking motion pictures under usual conditions in Yellowstone Park, and a copy sent for your files on the same date.

Death of Mr. F. Jay Haynes.

A telegram from Mr. J.E. Haynes, park concessioner, announced the death on March 10, 1921, at 2:00 o'clock A.M., of his Father, Mr. F.J. Haynes, at his home at 601 Dayton Avenue, St. Paul, Minnesota.

Mr. Haynes' death was caused by heart failure, from which he had been a sufferer for several years. By your direction, all flags in the park have been displayed at half-mast since receipt of your telegram, and this will be continued for a period of thirty days, March 12th to April 10th inclusive, in his honor.

Mr. Haynes' connection with Yellowstone Park dates from 1861. (In August, 1863, as photographer, he accompanied the distinguished party touring the park which included President Arthur, his Secretary of War, Senator Vest, Governor Crosby, of Montana, and other prominent men. Later, as official park photographer, on two occasions (1887 and 1894) he braved the severe cold and hardships of winter travel in the park, making extensive trips on skis to secure winter pictures of game and natural phenomena. His closer identification with the park began on March 20, 1884, when he received a concession to conduct a photographic business in the park, which he held continuously for thirty-two years, until his health began to fail in 1916, when his business was transferred to his son, Mr. J.E. Haynes.

In 1896, foreseeing the future possibility of development of the western entrance to the park as a tourist thoroughfare, he organized the Monida-Yellowstone Stage Company and secured a franchise for operating regular stages through the park entering from the west. For ten years tourists were taken from the railroad at Monida, Montana, and brought by this stage line for 55 miles to the park. Having demonstrated the popularity of this entrance, he finally induced the Union Pacific Railway Company to extend its branch line known as the Oregon Short Line from Ashton, Idaho, to the park line at West Yellowstone, Montana, in 1907. The name of this Company was in 1907 changed to the Yellowstone-Western Stage Company. This entrance has since become even more popular than the Gardiner gateway -- 20,151 tourists having been transported by this Company in a single year, 1915. His stage company was dissolved following the close of the season of 1916, when a new transportation company was formed to take care of rail travel from all entrances and permitted to use automobiles in place of the old-fashioned stage coaches.

While, due to his careful management and keen business acumen, all of Mr. Haynes' concessions in the park have proven satisfactory from a financial standpoint, he also had always a keen sense of obligation towards the park and its development as the property of the public. His dealing with the park officials, the public, his employees, and others, was always characterized by a spirit of fairness, which stands out forcibly in the minds of those with whom he was associated. His splendid photographs of the park scenery have been widely distributed all over the world for many years, and their influence in bringing the National Park into its present prominence is beyond estimate.

Mr. Haynes loved the park devotedly. He has spent forty consecutive summers in it, and from the time he left it for his home in St. Paul at the close of last season, until the last day of his life, he was always making plans for his return next summer. With his death the park has lost one of its oldest, most unselfish, and sincere friends.

Copy of my memorandum to the Chief Ranger ordering flags to be displayed at half-mast March 12th to April 10th inclusive is enclosed.

Miscellaneous.

Entertainments: Moving picture shows were held for the benefit of park employees, in the Post Exchange auditorium, on March 5th and 19th.

Church Services: Communion services were held in the Chapel by Rev. Clarence A. Kopp, Episcopal minister from Livingston, Montana, on the morning of March 1st, following his evening service of February 28th. Two services (morning and evening) were held in the chapel by Rev. J.F. Pritchard, of Emigrant, Montana, on March 28th.

The lost horse impounded at Lake Station last fall was advertised for sale, to be sold April 4th, no owner having claimed him.

Fire in West Yellowstone: The general store building in the village of West Yellowstone, Montana, owned by the Stewart Mercantile Company, caught fire and was practically destroyed on the evening of March 20th. The fire caught from a kerosene lamp being overturned by Mr. Alex Stewart, the Manager. Most of the contents of the store were lost.

Copy of Circular No. 1, dated January 15, 1921, which embodies the data contained in Superintendent Toll's letter to you relative to reforestation, is enclosed. This circular was gotten out in the Chief Ranger's office and distributed among Park Rangers for their guidance and information.

X. RECEIPTS AND REMITTANCES:

Report of moneys due, collected, and transmitted, on blank forms 10-59 and 10-60, is enclosed. The total amount transmitted, \$3.16, as shown by the report, is enclosed in the following form:

Postal Money Order, No. 46175, drawn by the Postmaster at Yellowstone Park, Wyo., on the Postmaster at Washington, D.C., to your order, \$1.15

Check No. 744, drawn to your order on March 15, 1921, by the Yellowstone Park Camps Company, on the Northwestern National Bank, of Livingston, Montana, \$2.05

Acknowledgment of the receipt of these funds
is requested.

Cordially yours,

Chester A. Lindsley,
Acting Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D.C.

Enclosures.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

April 1, 1921.

REPORT ON INFORMATION SERVICE.

To: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

146 National Park publications (of which 110 related to the Yellowstone National Park) were sent out free of charge. 92 short letters were sent out in reply to simple inquiries; 11 more letters requiring longer, more technical replies were answered after spending the necessary time in searching out the information desired. In addition, 146 letters applying for positions were answered, mostly by referring the applicants to the Hotel Company, the Camps Company, or the Transportation Company, as seemed most suitable.

Monthly report of Power Plant
for March 1921

Total KW Generated.		11 580
Sold to Concessioners	860	
Street Lighting	<u>1009</u>	1869 1869
Government Buildings		
Lines		9711
Peak Load, 9 PM, 3-26		46

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
YELLOWSTONE NATIONAL PARK
YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

April 1, 1921.

REPORT ON WORK PERFORMED.

To: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

Park Naturalist Skinner continued his field work on birds, mammals, and plants, and especially ^{on anti-bone} ~~on~~ during the early part of the month. Special study on museum construction was completed and a bibliography on the subject prepared for future use. Special study on forestry was continued and the study of Yellowstone Park plants was taken up again after having been dropped last October. Notes collected on field trips were written up and two manuscript articles prepared for publication. Other studies pursued by him, ~~as follows~~ resulting in his notes on Season^e Changes, Information Service, and Natural Phenomena, as embodied in this report.

Report for March 1921

Engineering Division

~~Work Completed~~

Construction of Physical Improvements /
No construction work in progress during March.

Maintenance & Repair of Physical Improvements.
During the month, a warm period of
several days duration caused a great
amount of snow to melt on the road between
Winthrop & Gardiner. The two engineers
dutifully patrolled this section for several
days, clearing debris from culverts and
ditches, and diverting streams from the
road bed to the side ditches.

Miscellaneous Improvement Work.

The two engineers devoted the
greater share of their time to office work,
completing the following.

Completed one design in detail for
20' ^{concrete} span T-beam bridge

Made complete, one design in detail
a 12' span, concrete slab. bridge
Completed the plans and estimates for
movements to the sprinkling system in
Park.

Made complete set of ~~the~~ rules and
relations for the operation of the
sprinkling system.

Made up a set of rules relating to the
ing of employees and teams; also a set
instructions for the benefit of prospective
employees.

A new design ~~to~~ was made for
wooden road-planer, which is to be
pled as a standard for the Park, if
nd to work successfully. The planer
constructed in the shops and later
d out on the Gardiner road with
satisfactory results.

Work in Progress.

There was no construction work in progress during the month.

Work Begun

new work started during the month.

Plans or Proposed Work.

inspection was made of the high bridge over the Gardiner River. ^{on the Top of Fall Road} concrete piers were found to be in such condition no repairs will be necessary this year. The steel bases of the bents on bridge are so constructed as to pockets, which hold from three to four inches of water; as no weep holes are provided for the water to escape, it is retained in the pockets until evaporated. ^{injury} because this water causes considerable ^{to} steel, it is proposed to remove all water and rust from the pockets and fill

road, but as the hillside shows cracks
for some distance back from the road,
it is likely that some trouble can be
expected at this point in the future.

X

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OFFICE OF THE SUPERINTENDENT

April 1, 1921.

REPORT ON NATURAL PHENOMENA.

To: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

At Mammoth Hot Springs: Blue Spring (the spring that furnishes water to Jupiter Terrace) showed possibly a little more activity, at any rate the colored part of Jupiter Terrace is increasing in size and variety of coloring. The spring to the south is maintaining its wonderful activity and fine coloring. Marble Terrace continues to decrease in activity. Angel Terrace again showed an improvement in activity and beauty of coloring. The White Elephant maintains its activity and if anything is becoming still more highly colored. Activity at Orange Spring was the same as last month. Bath Lake and the Devil's Kitchen still continue normal. Narrow Gauge Terrace remains the same as reported last month. Minerva Terrace after becoming quite "dead" as reported last month has again opened and a gentle trickle of water generating a little color is escaping. Mound Terrace continues normal. The Palette Spring continues to dry up. Cleopatra Terrace continues its normal activity and the color is as delicate and beautiful as ever. Hymen Terrace is drying up, a large part of the color and nearly all the water has disappeared, the wonderful algaous growth was turned to a marble whiteness and slowly disintegrating.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

TO THE SUPERINTENDENT

April 1, 1921.

REPORT ON SEASONAL CHANGES.

To: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

Botanical: Grass made good growth throughout the month for so early in the season. "Pussies" formed on the aspen on the 28th.

Birds: The remainder of the mallards, golden-eye ducks, and Townsend solitaires that had wintered along the Gardiner River, left during the month; and the dippers became reduced to summer numbers. The magpies, green-winged teal, mallard, and leucostictes wintering about Mammoth left for summer quarters.

Migratory birds arrived: bluebirds on the 2d, robins on the 5th, Cassin purple finches on the 8th, pink-sided juncos on the 9th, red-winged blackbirds on the 10th, killdeer plover on the 12th, meadowlarks and intermediate juncos on the 20th, crows on the 23rd, and desert horned larks and pine siskins on the 28th. Birds began singing: bluebirds on the 3rd, red-winged blackbirds on the 10th, meadowlarks on the 22d, Cassin purple finches on the 23rd, and Townsend solitaires on the 24th.

Interesting bird features of the month were: the earliest arrival ever recorded of the bluebird, robin, Cassin purple finch, and killdeer plover; the large number of song sparrows seen, 200 % higher than any previous March figure, and bluebirds, 90% higher than any previous March figure; and the remarkable tameness of a flock of crows now near Mammoth.

Mammals: Mule deer continued to migrate upward towards the summer ranges. The horn butts began to swell about the 20th and at the end of the month the new horns were an inch long.

The elk about Mammoth fell off in numbers as the migration progressed until at the end of the month there were only about one hundred head within a radius of four miles. The green grass enticed an average of 16 elk per day to the plaza. The casting of horns continued throughout the month. On most of the bull elk the horn butts had begun to swell on the 28th.

A few mountain sheep were seen at intervals along the walls of the Gardiner Canyon but they did not remain as in winter.

The antelope continued to move higher on the slopes of Mt. Everts and Sepulcher Mountain as the snow receded. All the males had full grown horns by the 15th. Began to shed hair on the 24th.

Woodchucks became common on the 25th, and ground squirrels became common on the 31st.

Jack rabbits began to change color on the 10th and by the end of the month they had begun to turn gray all over.

Insects: Springtails were swarming up through the snow on the 3rd. Small moths were seen flying on the 25th and became common before the end of the month. The first grasshopper was seen on the 31st.

Based on the above data, the season is now five days earlier than the average year. Flora and faunal changes have nothing to do with the melting of the snow; snow is now going off about two weeks earlier than the average.

Death of Mr. Frank Jay Haynes: A telegram from Mr. J.E. Haynes, park concessioner, announced the death on March 10, 1921, at ^{2:00} ~~11:00~~ o'clock A.M. of his Father, Mr. F. J. Haynes, at his home at 601 Dayton Avenue, St. Paul, Minnesota. Mr. Haynes' death was caused by heart failure, from which he has been a sufferer for several years. By your direction, all flags in the park have been displayed at half-staff since receipt of your telegram, and this will be continued for a period of thirty days, March 12 to April 12 inclusive, in his honor.

Mr. Haynes' connection with Yellowstone Park dates from ¹⁸⁸¹ ~~his trip~~ In August, 1883, as photographer ^{he accompanied} ~~with~~ the distinguished party which included President Arthur, his Secretary of War, Senator Vest, Governor Crosby of Montana, and other prominent men. Later as official park photographer, on two occasions (1887 and 1894) he braved the severe cold and hardships of winter travel in the park, making extensive trips on skis to secure winter pictures of game and natural phenomena. His closer identification with the park began in ^{March 20, 1884} ~~_____~~, when he received a concession to conduct a photograph business in the park, which he held ^{continuously for 32 years} until his health began to fail in ~~1916~~ ¹⁹¹⁷, when his business was transferred to his son, Mr. J.E. Haynes.

In 1898, foreseeing the future possibility of development of the western entrance to the park as a tourist thoroughfare, he organized the Monida-Yellowstone Stage Company and secured a franchise for operating regular stages through the park entering from the west. ^{For 10 years} Tourists were ~~at first~~ taken from the railroad at Monida, Montana, and brought by ^{this line} ~~a~~ stage 55 miles to the park. ~~boundary~~ Having demonstrated the popularity of this entrance, he finally induced the Union Pacific Railway Company to extend its branch line known as the Oregon Short Line from Ashton, Idaho to the park line at West Yellowstone, Montana, ^{in 1907} and this entrance has since become ^{even more} ~~equally~~ popular ^{than} with the Gardiner gateway. ^{29,151 tourists having been transported by the Company in a single year, 1915.} ~~after the building of~~ His stage company was dissolved following the close of the season of 1916, when a new trans-

portation company was formed to take care of rail travel from all entrances and permitted to use automobiles in place of the old-fashioned stage coaches.

While due to his careful management and keen business acumen, all of Mr. Haynes' concessions in the Park have proven ^{satisfactory} profitable from a financial standpoint, he also had always a keen sense of obligation towards the park and its development as the property of the public. His dealings with park officials, the public, his employees, and others, was always characterized by a spirit of fairness which stands out forcibly in the minds of those with whom he was associated. His splendid photographs of the park scenery have been widely distributed all over the world for many years, and their influence in bringing the National Park into its present prominence is beyond estimate.

Mr. Haynes loved the park devotedly. He has spent 40 consecutive summers in it, and from the time he left it for his home in St. Paul at the close of last season, until the last day of his life, he was always making plans for his return next summer. With his death the Park has lost one of its oldest, most unselfish, and sincere friends.

April
1
1921

Superintendent Horace M. Albright,
Yellowstone National Park, Wyo.

Dear Mr. Albright:

I respectfully submit to you my monthly report, for the month of March 1921, of the activities of the park ranger force.

As in the past, the month of March has been similar to other years in its diversion from the hard grind of patrols and the worry of the game conditions.

It is my pleasure to report that after almost two weeks of very thorough investigating, I am convinced that at no time in the history of the Yellowstone National Park have predatory animals killed such a small number out of our big game herds, or from deaths due to natural or other causes. This report is based upon actual count from a survey of the entire northern district conducted under my orders following our discussion of the matter.

The feeding of the buffalo and elk on the two respective ranches was discontinued by the tenth of the month at each ranch, due to the fact that these animals left the feed grounds as the snow left the mountains.

Favorable weather conditions allowed us to start work on the new cabin at Hell-roaring, which, I expect will be used as a permanent winter station. The work is under the direction of Ass't. Chief Ranger Trischman and myself, assisted by Park Rangers, Dupuyis, Larsen, Lawson, Bishop and Anderson. 3.52

Mr. Ed Burkett, of Gardiner, Mont., was taken onto our payroll as a day laborer, on trial, at \$3.56 per day. His services have been very satisfactory and he shows that his qualifications for a permanent position are far above the average to be obtained. He is highly recommended by Trischman and me.

The work is proceeding rapidly. The cab cabin is practically completed. It is seven logs high, thirty-two feet long by fifteen and one half feet wide. It will have two rooms, four windows and two doors.

As soon as the cabin is finished, a small rough barn will be erected, the old cabin to be used as a forage store-house. The labor involved in its erection will be charged to protection, while the actual cost taken from the appropriation will not exceed \$150; accounted for by rations and miscellaneous supplies.

With the open spring, I believe we will be able to do a large amount of this work. Plans are being made to repair the Buffalo Corral fence, cut the fire wood for the Mammoth Auto Camp, to re-build at Crevice and if possible to build a log bridge across the Yellowstone River below the mouth of Hellroaring Creek, which will shorten the distance to Tower Falls by almost seven miles. Very little expense is involved in the above mentioned work.

The protection of the park's interest in the northern district is not neglected in this work. All important sections are regularly patrolled.

Hutchins and C. Anderson have started work on a store-house and new cabin at the Slough Creek Horse ranch. There is no additional expense involved in this work.

Park Ranger E. T. Scoyen was notified according to your instructions of March 9th, designating him as Act'g. Ass't. Chief Ranger, with unassigned district. He was transferred to the Canyon station, where he is taking readings of the flow of the Yellowstone River at that point. He reports a steady fall in the flow.

The resignation of Park Ranger Fred J. Townsend was accepted March 1st. His reason given with the resignation was, 'poor physical condition.'

The saddle horse impounded at the Lake Station early last fall became the property of the United States government March 24th, and will be sold April 4th, according to the instructions and regulations prescribed by the Secretary of the Interior. I would estimate the value of the animal at \$30. It will be sold to the highest bidder, sealed bids to be accepted.

Reports to the effect that predatory animals had increased in the park, have so far, proven to be unfounded. Park Rangers Henry Anderson and Court Dewing spent the entire month after these animals but have made the smallest catch on record in this office. Fifty coyote hides and one wolf hide was turned in to be sold by Ranger Henry Anderson, also nine from Ranger James Duggins and one from Dewing. Anderson has killed about thirty more coyotes than have been turned in.

Under special permits, Messers Bob Summerville, Lon Ebeau, Bill Marshall, Frank Lind, Maurice Musser, Lee Webb, Bert Stinnett, A.C.D. Herman, Harry Marshall, Bill Riley, Jack McDonald and Dr. W.E. Crawbuck, hunted coyotes in the Yellowstone National Park and were permitted to keep the hides of the animals killed. The total catch of the above named men amounted to eighteen coyotes, no wolves.

Anderson and Dewing will begin the clean-up on wolf dens early in April. About a dozen have been located.

Upon your suggestion, the following named men were selected to compose the personnel of the 1921 tourist season ranger force:

Emmet S. Matthew,	Montana.
Hollis N. Matthew,	Montana.
John L. Tyler,	Montana. *
Sam Hurless,	Montana.
William C. Troutman,	Illinois.
Leon D. Mink,	Montana.
Ray D. Teesdale,	So. Dakota.
F. J. Parsch,	So. Dakota.
Russell Sprinkel,	Illinois.
Wendell S. Keate,	Utah.
Eugene V. Robertson,	Montana.
Vernon S. Downs,	Iowa.
Louis Druskin,	Massachusetts.
E. E. Randolph,	Texas.

J. Paul Campbell,	Montana.
Gordon Cottier,	Montana.
F. L. Carter,	Michigan.
Edw. B. Cogswell,	Montana.
C. F. Donohoe,	Montana.
Fred C. Finch,	Montana.
Don Le Cornu,	Montana.
Cyril C. Moore,	Montana.
Paul R. Wylie,	Montana.
Marguerite Lindsley,	Wyoming. ◇
F. Hohnson Roe,	Washington.
Jack Stratton,	California.
Philip R. Hough,	Washington.
Edward Pyle,	Montana. *
Alfred H. Clarke,	New Jersey.
E. P. Buckenmyer,	Ohio.
Robert Wilkenson,	Connecticut.
Robert J. Potter,	Wyoming.
Frank H. Schramm,	Wisconsin.
Milton H. Lichtenwallner,	Pennsylvania.
Henry W. Capen,	Wisconsin.
James S. Baker,	Wisconsin.
Roger D. Baker,	Wisconsin.

** Warren H. Loys ^{ter} ,	New York.
John T. Needham,	New York.
T. A. Wooschlager,	New York.
H. E. Pamel,	Iowa.

* Tyler will not be able to return.

* Pyle working with McFarland.

** Pending further information from you.

The Southern district of the park is the only district where a decided difference is noted in the depth of the snow. Long thaws during the month, left the entire northern district bare of snow except where deep drifts have prevailed all winter. With the exception of the slide in the "Devil's Gut" the rode to Tower Falls is open to wagon travel. The Cooke City Mail Stage Bus was able to reach the 12 mile post without trouble at the last of the month. Little trouble will be encountered opening the road in the interior of the park. The greatest depth of snow in Sylvan Pass as reported by Ranger Wisdom is between twenty-five and twenty-seven feet and at the six mile post six foot deep.

The depth of snow at the following stations at the end of the month is:

Bechler River,	72 inches.
Snake River,	53 inches.
Lamar River, (Upper),	15 inches.
Upper Yellowstone,	36 inches.
Thumb,	46 inches.
Canyon,	24 inches.
Norris,	12 inches.
Lake,	36 inches.
Sylvan Pass,	24 inches.
Gardiner,	None.
Hellroaring,	None.
Buffalo Ranch,	Trace.
Slough Creek,	8 inches.
Tower Falls,	8 inches.
Soda Butte,	Traces.
Riverside,	24 inches.
Gallatin,	26 inches.
Mammoth,	Traces.

Where an increase is reported, it is due to a recent storm, or where no decrease is reported, likewise a recent storm. This will be a small issue as soon as the weather turns warmer and gives the snow a chance to settle. The bottom of many of the large drifts has fallen out, according to the reports.

The warm weather during the first of the month, opened the Yellowstone River almost two hundred yards back into the lake. Practically all of the ice along the banks between the Lake and the Canyon has gone out.

Q.S. opened railroad to Hot Yell March 12th

The general condition of the game herds still remains exceptional. They are in high flesh and have returned to the high ridges where forage is abundant.

Bear signs are numerous. Four black bear and one grizzly have been seen so far this year. They were reported in the Hellroaring district.

Thirty eight elk were killed by wolves during the winter, about forty per cent of which, were calves. Coyotes were responsible for the death of about 25 deer and two antelope. Four old cows died of natural causes, and one probably from gunshot wounds received outside of the park after the close of the hunting season. No reports of bull elk dying during the winter, have been reported.

Rangers in the Forest Service in the Hellroaring district reported eighteen moose but so far, have seen no elk outside of the park. They reported about thirty deer.

Mountain sheep have gone back into the mountains and have not been since for more than a month.

The hay supply at the Slough Creek ranch gave out on the 13th of the month. All of the elk immediately left the ranch headed for the Specimen Ridge district. They have not returned.

Buffalo Keeper Lacombe herded the entire buffalo herd back on Mount Norris March 3rd, and have showed no inclination to return to the ranch. The calf herd is being fed in the corral but will be allowed to run with the herd during the latter part of April. They are being fed about 700 pounds of hay daily.

Out of approximately 400 ton of hay out at the buffalo ranch during the summer of 1920, Lacombe will have 200 ton left in the stack for use in the future.

Fishing in the Gardiner and Yellowstone Rivers has been very good according to the reports. No permits were issued to fish in the Yellowstone within the park, but local citizens made many large catches in the Gardiner during the month. These parties are being watched by rangers.

Park Rangers on leave during the month follow:

Warren Hutchins,	11 days.
Sam T. Woodring,	4 days.
T. C. Pound,	1 day.
Ford Purdy,	14 days.
Clifford Anderson,	2 days.
Roy T. Frazier,	24 days.
E. T. Scoyen,	14 days. *
W.M. Bishop,	13 days. *
R. R. Wisdom,	20 days. *

* Leave to be taken during the month of
*April.

Ranger Earl Bowman was ordered to take charge of the Sylvan Pass Station during the month of April from the 1st to 25th, by Ass't. Chief Ranger Joe Douglas to relieve Park Ranger R.R. Wisdom, on leave.

Ranger James Russell was ordered to the Upper Yellowstone Station to relieve Rot'g. Ass't. Chief Ranger Scoyen, the latter being order to the Canyon station.

Mr. Jack McDonald, employed by McFarland as teamster will relieve Mr. Charles Wilson at the Buffal Ranch as Assistant to Lacombe. McDonald is well known to this department and is considered a very reliable man.

Travel during the month was very light. Three passengers were carried on the Cooke Stage and seven transients visited headquarters during the month.

Reports from the Riverside Station state that the mercantile store owned and operated at West Yellowstone, Mont., by Mr. A. Stuart, burned to the ground Sunday night March 20. The contents of the building was a total loss.

Respectfully yours,

James M. Bride